

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**VS-21H-IR**

***2x1 HDMI Switcher***

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## 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups<sup>1</sup> that are clearly defined by function.

Congratulations on purchasing your Kramer DigiTOOLS® **VS-21H-IR** 2x1 *HDMI*<sup>2</sup> *Switcher*! The **VS-21H-IR** is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging

The package includes the following items:

- **VS-21H-IR** 2x1 HDMI Switcher
- Power adapter (12V DC)
- Infrared remote control transmitter (including the required batteries and a separate user manual<sup>3</sup>)
- This user manual<sup>3</sup>

## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

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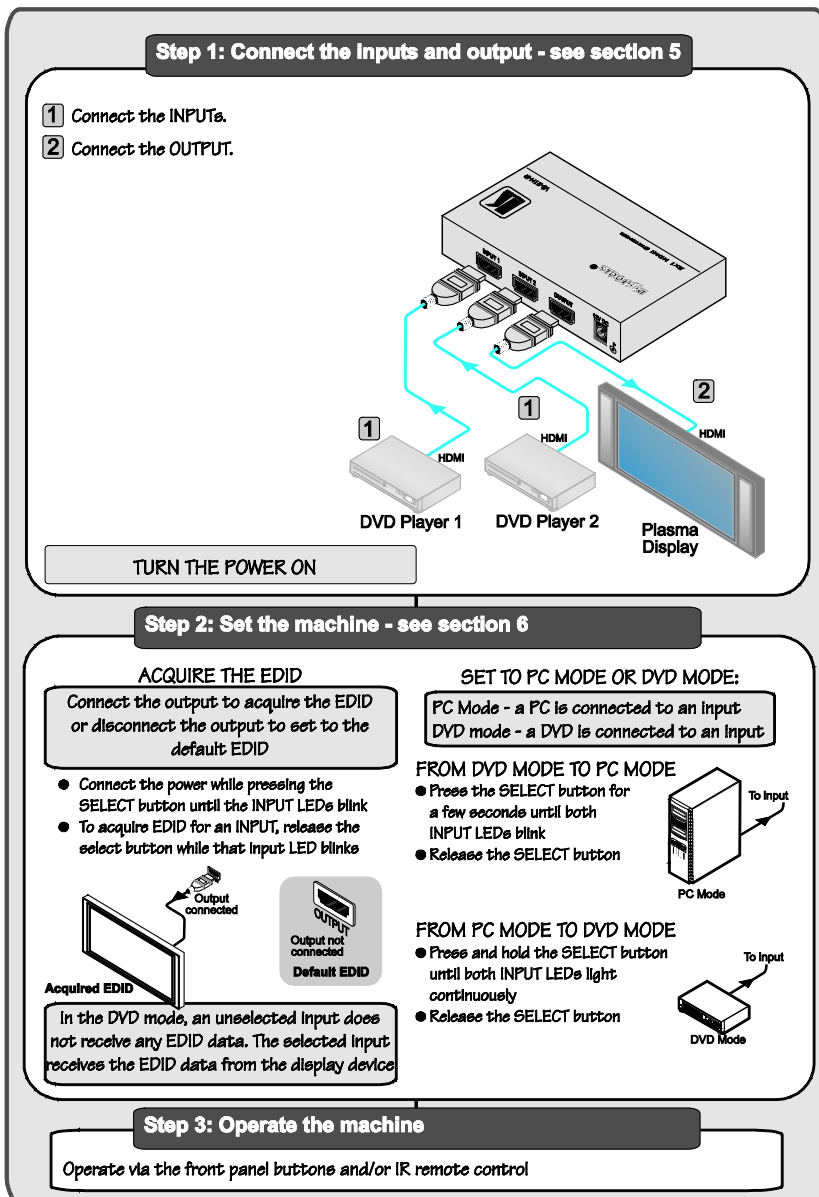
1 GROUP 1: Distribution Amplifiers, GROUP 2: Switchers and Routers, GROUP 3: Control Systems, GROUP 4: Format/Standards Converters, GROUP 5: Range Extenders and Repeaters, GROUP 6: Specialty AV Products, GROUP 7: Scan Converters and Scalers, GROUP 8: Cables and Connectors, GROUP 9: Room Connectivity, GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products

2 High-Definition Multimedia Interface

3 Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

## 2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



## 2.2 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances
- Position your **VS-21H-IR** away from moisture, excessive sunlight and dust



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

## 2.3 Safety Instructions



**Caution:** There are no operator serviceable parts inside the unit

**Warning:** Use only the Kramer Electronics input power wall adapter that is provided with the unit

**Warning:** Disconnect the power and unplug the unit from the wall before installing

## 2.4 Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at <http://www.kramerelectronics.com/support/recycling/>.

### 3 Overview

The **VS-21H-IR** is a high quality switcher for HDMI signals that accepts two HDMI inputs—letting you select either HDMI input using a switch located on the panel—and routes the selected HDMI input signal to the HDMI output.

In particular, the **VS-21H-IR** features:

- Support of up to 2.25Gbps bandwidth per graphic channel<sup>1</sup>
- HDMI Support - Deep Color, x.v.Color™, up to 7.1 Uncompressed Audio Channels
- EDID PassThru that passes EDID/HDCP signals from source to display
- 12V DC power
- IR remote control capability

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<sup>1</sup> Suitable for resolutions up to UXGA at 60Hz, and for all HD resolutions

## 4 Your VS-21H-IR 2x1 HDMI Switcher

[Figure 1](#) and [Table 1](#) define the VS-21H-IR 2x1 HDMI Switcher:

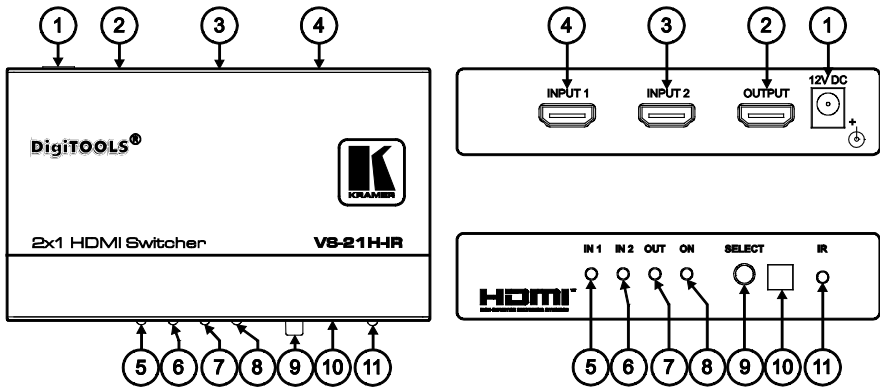


Figure 1: VS-21H-IR 2x1 HDMI Switcher

Table 1: VS-21H-IR 2x1 HDMI Switcher (Top Side Panel) Features

#	Feature	Function
1	12V DC	+12V DC connector for powering the unit
2	OUTPUT HDMI Connector	Connects to the HDMI acceptor
3	INPUT 2 HDMI Connector	Connects to the HDMI source 2
4	INPUT 1 HDMI Connector	Connects to the HDMI source 1
5	IN 1 LED	Lights when source 1 is selected <sup>1</sup>
6	IN 2 LED	Lights when source 2 is selected <sup>1</sup>
7	OUT LED	Lights when the output is connected
8	ON LED	Lights when receiving power
9	SELECT Button	Toggles <sup>2</sup> between IN 1 and IN 2
10	IR Receiver Window	Receives signals from the infrared remote control transmitter
11	IR LED	The red LED lights when receiving signals from the Infrared remote control transmitter

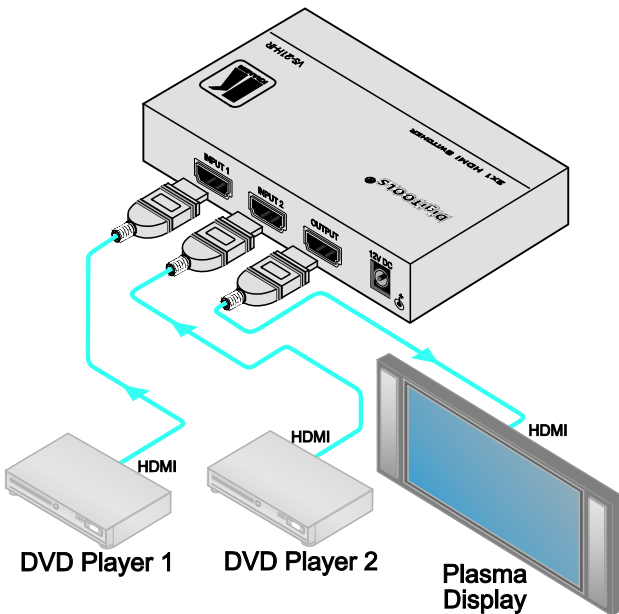
<sup>1</sup> Blinks when selected but no input is connected

<sup>2</sup> IN 1 LED lights when INPUT 1 is selected, or the IN 2 LED lights when IN 2 is selected

## 5 Connecting the VS-21H-IR 2x1 HDMI Switcher

To connect the **VS-21H-IR**, as the example in [Figure 2](#) shows, do the following<sup>1</sup>:

1. Connect up to two HDMI sources to the INPUT connectors, using the Kramer HDMI cables: INPUT 1 connector to HDMI source 1 (for example, DVD Player 1) and INPUT 2 connector to HDMI source 2 (for example, DVD Player 2).
2. Connect the OUTPUT connector to the HDMI acceptor (for example, a plasma display), using the Kramer HDMI cable.
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
4. Press the SELECT button<sup>2</sup> to choose which HDMI input to route to the output. The SELECT button toggles between INPUT 1 and INPUT 2, lighting the IN 1 LED when INPUT 1 is selected, or the IN 2 LED when IN 2 is selected.



*Figure 2: Connecting a VS-21H-IR 2x1 HDMI Switcher*

<sup>1</sup> Switch OFF the power on each device before connecting it to your VS-21H-IR. After connecting your VS-21H-IR, switch on its power and then switch on the power on each device

<sup>2</sup> Or press key 1 or 2 on the remote transmitter, once setup (see [Section 5.1](#))



## 5.1 Using the Remote Control Transmitter

You can use the remote control transmitter<sup>1</sup> to switch INPUT 1 or 2 to the output. Before doing so, set it to work with the **VS-21H-IR** by assigning a GROUP number.

To assign the GROUP number on the remote control transmitter, do the following:

1. Point the remote control transmitter at the remote receiver (item 10 in [Figure 1](#) / [Table 1](#)) and press the GROUP key.
2. Press key 11.  
This sets and saves the group number.

To switch INPUT 1 or 2 to the output via the remote control transmitter, press key 1 or 2.

## 6 Operating the VS-21H-IR 2x1 HDMI Switcher

This section describes how to operate the **VS-21H-IR**, using the SELECT button. The **VS-21H-IR** functions in two modes: the PC mode<sup>2</sup> (see [Section 6.1](#)) and the DVD mode (see [Section 6.2](#)).

### 6.1 Working in the PC Mode

This section describes how to acquire / change the EDID (see [Section 6.1.1](#)) and how to reset the default EDID (see [Section 6.1.2](#)) when working in the PC mode.

Note that if a PC is connected to the input, and the EDID is acquired while running video on-screen, the video will stop running and then will either restart automatically or will need to be restarted via the graphics card display definitions, depending on the type of graphics card installed in the PC.

#### 6.1.1 Acquiring / Changing the EDID

You can work with the default EDID or acquire / change the EDID.

To acquire or change the EDID:

1. Connect the new output display device.  
If no output display device is connected to the output, the default EDID is stored in the non-volatile memory.

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<sup>1</sup> The setup parameters for the remote control transmitter are as follows: router number = 1 (default); group number = 11, single digit mode (default), video (default). For further details, see the RC-IR2 user manual

<sup>2</sup> The default

2. Connect the power while keeping the SELECT button pressed until the LEDs start to flash.
3. Release the SELECT button while the IN 1, IN 2 and OUT LEDs flash.  
The EDID of both INPUT 1 and 2 is altered and stored in the non-volatile memory.

When a certain input—INPUT 1 or INPUT 2—is selected, the EDID information comes directly from the display. When the input is not selected, the **VS-21H-IR** uses the virtual EDID stored in the non-volatile memory.

### **6.1.2 Resetting to the Default EDID**

To reset the default EDID, do the following:

1. Disconnect the power.
2. Disconnect the output cable.
3. Connect the power while keeping the SELECT button pressed until the IN 1, IN 2 and OUT LEDs flash.

## **6.2 Working in the DVD Mode**

In the DVD mode, an unselected input will not receive any EDID data. The selected input will receive the EDID data directly from the display device.

### **6.2.1 Toggling from the DVD mode to the PC mode**

To toggle from the DVD mode to the PC mode:

1. Press and hold the SELECT button for a few seconds until both INPUT LEDs flash, while the device is powered on.
2. Release the SELECT button.  
The **VS-21H-IR** switches to the PC mode.

### **6.2.2 Toggling from the PC mode to the DVD mode**

To toggle from the PC mode to the DVD mode:

1. Press and hold the SELECT button until both INPUT LEDs light continuously without flashing, while the device is powered on.
2. Release the SELECT button.  
The **VS-21HDMI-IR** switches to DVD mode.

## 6.3 VS-21H-IR Factory Reset Procedure

To reset the **VS-21H-IR** to its factory default values:

1. Connect the power to the **VS-21H-IR** while pressing the SELECT button.
2. Wait until LEDs IN 1 and IN 2 blink and OUT LED lights and then release the SELECT button.
3. Disconnect the power.
4. Reconnect the power while pressing the SELECT button.
5. Wait until LEDs IN 1, IN 2 and OUT blink and then release the SELECT button.

## 7 Technical Specifications

[Table 2](#) includes the technical specifications<sup>1</sup> of the **VS-21H-IR**:

*Table 2: Technical Specifications of the VS-21H-IR 2x1 HDMI*

INPUTS:	2 HDMI connectors
OUTPUT:	HDMI connector
BANDWIDTH:	Supports up to 2.25Gbps bandwidth per channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP
CONTROLS:	Input Select button, IR remote control
INDICATOR LEDs:	IN 1, IN 2, OUT, and ON LEDs
POWER SOURCE:	12V DC, 180mA
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)
STORAGE TEMPERATURE:	-40° to +70°C (-40° to 158°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	12cm x 7.15cm x 2.76cm (4.7" x 2.8" x 1.08") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	Power supply, bracket installation kit, IR remote control
OPTIONS:	HDMI/HDMI male-to-male cables

<sup>1</sup> Specifications are subject to change without notice

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## LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

### What is Covered

This limited warranty covers defects in materials and workmanship in this product.

### What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

### What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

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If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

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To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

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**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



P/N: 2900-000671



Rev: 5



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